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Global Sports Exoskeleton Market - 2025-2033

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Abstracts

Overview

The global sports exoskeleton market reached US$ 56.26 million in 2024 and is expected to reach US$ 253.42 million by 2033, growing at a CAGR of 18.5% during the forecast period 2025-2033.

A sports exoskeleton is a wearable device designed to augment, assist, or enhance physical performance during athletic activities. It works by providing external support to the body’s movements, typically through mechanical actuators, motors, or passive systems that align with or enhance the natural motion of muscles and joints. The goal is to improve the user's physical capabilities, reduce fatigue, prevent injury, or aid in rehabilitation.

Sports exoskeletons combine biomechanics, robotics, and ergonomic design to enhance athletic performance, prevent injuries, and aid in recovery. They’re advancing quickly with ongoing research, particularly as materials, motors, and control systems improve, making them more accessible and effective for a wider range of users.

Market Dynamics: Drivers & Restraints

Rising Demand for Sports Injury Rehabilitation

The rising demand for sports injury rehabilitation is a major driver of growth in the sports exoskeleton market. As sports-related injuries continue to be a common occurrence at both amateur and professional levels, exoskeletons are increasingly seen as an effective tool in accelerating recovery, providing support, and preventing further injuries.

According to the National Safety Council (NSC), in the U.S., about 30 million children

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and teens participate in some form of organized sports, and more than 3.5 million injuries occur each year. These injuries often require long-term rehabilitation, where exoskeletons can play a crucial role in providing mechanical assistance to the affected areas, reducing stress on joints and muscles during recovery.

Sports exoskeletons are being used to assist in the rehabilitation of muscle atrophy, joint instability, and gait disorders, which often result from sports injuries. These devices are designed to support and assist the wearer's movements, allowing them to regain strength and mobility faster.

For instance, Cyberdyne’s HAL Lumbar Support helps top athletes learn how to relax their muscles through neurosensing technology. Neuro HAL Plus, currently available only in Japan, is a program designed specifically for athletes to improve the performance of the muscular system, as well as adjust the optimal timing and balance of muscle contraction and relaxation.

High Costs Associated with the Sports Exoskeleton Products

The high costs associated with sports exoskeleton products are a significant barrier to the widespread adoption and growth of the sports exoskeleton market. While these devices offer immense potential for improving sports rehabilitation, enhancing performance, and preventing injuries, the high initial cost and maintenance expenses make them inaccessible to many potential users, including athletes, rehabilitation centers, and even sports teams.

For instance, Cyberdyne’s HAL device can be rented at a cost ranging from US$ 1,061.03 to 1,262.50 per month for the double-leg model and between US$ 933.44 and 839.43 for the single-leg model. HAL's installation fee adds US$ 3,693.47 to the rental price for the double-leg model and US$ 2,686.16 for the single-leg one.

Such high costs limit accessibility to these devices primarily to large healthcare institutions, specialized rehabilitation centers, or professional sports teams, leaving out smaller sports organizations, clinics, and individual athletes who could benefit from their use.

Exoskeletons require regular maintenance, which adds another layer of financial burden. This includes battery replacement, software updates, sensor calibration, and repairs to the actuators and motors. These maintenance costs can be 10-20% of the initial purchase price per year.

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Segment Analysis

The global sports exoskeleton market is segmented based on type, mobility, and application region.

Type:

Lower body exoskeletons in the type segment are expected to dominate the sports exoskeleton market.

A lower-body exoskeleton supports and enhances leg movement, incorporating modules for hip, knee, and ankle joints. Connected to the human body via straps at the foot, shank, thigh, and waist, these devices aid in activities like walking, standing, or squatting.

The lower body exoskeleton segment in the global sports exoskeleton market is fueled by product launches, increasing demand for improved athletic performance, wearable robotics for rehabilitation, advancements in lightweight materials, AI-driven motion assistance, and battery efficiency.

Moreover, investments in sports technology, partnerships, and biomechanics awareness create lucrative opportunities. The growing elderly population's interest in active lifestyles expands the customer base. For instance, in January 2025, Hypershell, a leader in PowerSuit based on Exoskeleton Technology, announces its participation at CES 2025 following the successful launch of the Hypershell X Series. Highlighting this milestone, the Hypershell Carbon X has been named a CES Innovation Awards 2025 Best of Innovation Honoree in the Robotics Category.

Moreover, in May 2022, Shenzhen Kenqing Technology Co., Ltd.'s Ant series of lower limb force exoskeleton robots, including the Ant-P1, Ant-C1 Pro, and Ant-H1 Pro, have been recognized in the "2022 First batch of innovative products in Shenzhen" by the Shenzhen Municipal Bureau of Industry and Information Technology. This selection highlights their innovative design, advanced technology, and reliable quality.

Geographical Analysis

North America is expected to dominate the sports exoskeleton market.

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North America is poised to dominate the sports exoskeleton market due to several key factors. The region benefits from substantial investments in research and development, which drive innovation and the creation of more efficient, lightweight, and user-friendly exoskeletons. Additionally, North America's strong technological advancements, particularly in robotics and healthcare, support the integration of advanced technologies into exoskeletons, improving their functionality and appeal.

With the growing number of injuries among sportspeople, there is a growing adoption of sports exoskeletons in the region. Moreover, the region's demographic factors, including a growing elderly sports population and a significant number of individuals with mobility disabilities, also contribute to the increasing demand for exoskeletons.

The presence of major manufacturers further enhances the market's growth, as these companies contribute significantly to the development and commercialization of advanced exoskeleton products and the strategic collaborations by the companies for innovating solutions for sports, including adventurous sports such as hiking, skiing, among others.

For instance, in July 2024, Skip, a startup originally part of Google X, partnered with outdoor gear brand Arc'teryx to debut a futuristic exoskeleton designed specifically for hiking. This innovative exoskeleton is engineered to reduce fatigue and improve endurance by enhancing leg strength and mobility, making long hikes easier and less tiring. The collaboration merges cutting-edge wearable technology with Arc'teryx's expertise in outdoor gear, providing a new way to tackle challenging terrains. The exoskeleton offers hikers additional support, making it a game-changer for outdoor enthusiasts looking to push their limits. Overall, these factors position North America as a dominant region in the global sports exoskeleton market.

Competitive Landscape

The global market players in the sports exoskeleton market include ?ssur, Onerzia, Cyberdyne Care Robotics GmbH, MOBILIS, Invent Medical, Ski-Mojo, Shenzhen Kenqing Technology Co., Ltd, Dnsys, Hypershell, and Laevo B.V., among others.

Why Purchase the Report?

- Pipeline & Innovations: Reviews ongoing clinical trials, product pipelines, and forecasts upcoming pharmaceutical advancements.

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Type Performance & Market Positioning: Analyzes product performance, market positioning, and growth potential to optimize strategies.

Real-World Evidence: Integrates patient feedback and data into product development for improved outcomes.

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Market Updates & Industry Changes: Covers recent regulatory changes, new policies, and emerging technologies.

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Supply Chain Optimization: Assesses supply chain risks and distribution strategies for efficient Type delivery.

Sustainability & Regulatory Impact: Focuses on eco-friendly practices and evolving regulations in healthcare.

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Pharmacoeconomics & Value-Based Pricing: Analyzes the shift to value-based pricing and data-driven decision-making in R&D.

The global sports exoskeleton market report will provide approximately 45 tables, 46 figures, and 180 pages.

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Target Audience 2024

Manufacturers: Pharmaceutical, Biotech Companies, Contract Manufacturers, Distributors, Hospitals.

Regulatory & Policy: Compliance Officers, Government, Health Economists, Market Access Specialists.

Technology & Innovation: R&D Professionals, Clinical Trial Managers, Pharmacovigilance Experts.

Investors: Healthcare Investors, Venture Fund Investors, Pharma Marketing & Sales.

Consulting & Advisory: Healthcare Consultants, Industry Associations, Analysts.

Supply Chain: Distribution and Supply Chain Managers.

Consumers & Advocacy: Patients, Advocacy Groups, Insurance Companies.

Academic & Research: Academic Institutions.

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